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09/556,824	04/21/2000	Hiroyuki Ogawa	SUD-115-USAP	6405

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EXAMINER

KIM, CHONG R

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/556,824

Applicant(s)

OGAWA, HIROYUKI

Examiner

Charles Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment and Arguments*

1. Applicant's amendment filed on April 15, 2003 has been entered and made of record.
2. In view of applicant's amendment, the objection to claim 6 has been withdrawn.
3. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 2 is rejected under 35 U.S.C. 102(e) as being anticipated by King et al., U.S. Patent No. 6,122,396 ("King").

Referring to claim 2, King discloses a method for detecting the presence of microorganisms in a sample, comprising the steps of:

- a. preparing a light-permeable microorganism colony culture medium mixed with a sample (col. 5, lines 24-64)
- b. illuminating the medium with a coherent laser beam (col. 6, lines 31-36)

c. receiving the light projection generated by the medium with an image sensor, the presence of microorganisms being detected by analyzing the projected image data obtained by the image sensor (col. 6, line 31-col. 7, line 17).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of King et al., U.S. Patent No. 6,122,396 ("King"), and Jaggi et al., U.S. Patent No. 4,845,552 ("Jaggi").

Referring to claim 3, King discloses a projection detecting system comprising:

- a. a loading portion of a transparent non-flowing cell container (slide) which contains a microorganism colony under observation (col. 6, lines 11-14)
- b. a coherent laser beam emitting source which illuminates the object placed on the loading portion (col. 6, lines 31-36)
- c. an image sensor which is arranged to receive the light projection generated by the object illuminated by the laser beam and providing the projected image data corresponding to the received light (col. 6, line 31-col. 7, line 17).

King fails to explicitly state that the image sensor is an array of light sensitive detectors. However, image sensors comprised of an array of light sensitive detectors were exceedingly well known in the art. For example, Jaggi teaches an image sensor with an array of light sensitive detectors for detecting a coherent laser beam that has been illuminated on a microscopic object (col. 3, lines 63-66 and col. 4, lines 63-67).

King and Jaggi are both concerned with detecting microscopic objects utilizing a laser light source and an image sensor. Jaggi's system provides a high resolution image with minimum deterioration (Jaggi, col. 2, lines 55-59). Therefore, it would have been obvious to modify the image sensor of King so that it is comprised of an array of light sensitive detectors, as taught by Jaggi, in order to enhance the detection of microorganisms by analyzing a high resolution projected image.

Referring to claim 4, see the rejection of at least claim 3 above. King further discloses:

- a. a multiple loading portion capable of accommodating many of said transparent non-flowing cell containers under observation in a row (col. 6, lines 8-28)
- b. a coherent laser beam emitting source which illuminates through the transparent non-flowing cell containers placed on the loading portion (col. 6, lines 31-36)
- c. an image sensor arranged to receive the compounded light projection generated by the transparent non-flowing cell containers illuminated by the laser beam and providing the projected image data corresponding the received light (col. 16, lines 10-18).

King fails to explicitly state that the image sensor is an array of light sensitive detectors. However, image sensors comprised of an array of light sensitive detectors were exceedingly well known in the art. For example, Jaggi teaches an image sensor with an array of light sensitive

detectors for detecting a coherent laser beam that has been illuminated on a microscopic object (col. 3, lines 63-66 and col. 4, lines 63-67). Therefore, it would have been obvious to modify the image sensor of King so that it is comprised of an array of light sensitive detectors, as taught by Jaggi, for the reasons stated above.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of King et al., U.S. Patent No. 6,122,396 ("King"), and Jaggi et al., U.S. Patent No. 4,845,552 ("Jaggi"), further in view of Hirschfeld, U.S. Patent No. 3,819,270 ("Hirschfeld").

Referring to claim 5, the combination of King and Jaggi fail to teach three coherent laser beam sources and three image sensors.

Hirschfeld discloses three coherent light beam sources which illuminate an object from X, Y, and Z directions which are perpendicular to each other (col. 9, lines 20-25. Note that the "three corresponding light beams along mutually orthogonal paths" in lines 23-24 is interpreted to mean that the beams are in the X, Y, and Z directions that are perpendicular to each other), and three image sensors which are an array of light sensitive detectors, arranged to receive the light projection generated by the object illuminated by the light beams from the X, Y, and Z directions and providing the projected image data corresponding to each detector as X, Y, and Z image data (col. 9, lines 26-38).

King, Jaggi, and Hirschfeld are all concerned with projection detection systems for detecting microscopic objects. Hirschfeld's system provides accurate measurements by minimizing orientation effects (Hirschfeld, col. 9, lines 11-13). Therefore, it would have been obvious to modify the system of King and Jaggi, to include three laser beam sources and three

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image sensors as taught by Hirschfeld, in order to improve the detection process by analyzing an accurate image.

7. Claim 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of King et al., U.S. Patent No. 6,122,396 ("King"), and Jaggi et al., U.S. Patent No. 4,845,552 ("Jaggi"), in view of Schembri et al., U.S. Patent No. 6,518,056 ("Schembri"), further in view of Hirschfeld, U.S. Patent No. 3,819,270 ("Hirschfeld").

Referring to claim 6, the combination of King and Jaggi teach a loading portion which holds an object under observation (as noted above), but fail to disclose that the loading portion is capable of rotating the object with a constant angular velocity around a center axis that passes through the center of the object. However, loading portions capable of rotating an object with constant angular velocity were exceedingly well known in the art. For example, Schembri discloses a loading portion which holds an object under observation and is capable of rotating the object with a constant angular velocity around a center axis that passes through the center of the object (col. 13, lines 40-50).

King, Jaggi, and Schembri are all concerned with projection detection systems for detecting microscopic biologic objects. Schembri provides a compact and inexpensive system that increases efficiency and facilitates the detection process by avoiding the risk of detector overload found in conventional scanners (Schembri, col. 5, lines 22-31). Therefore, it would have been obvious to modify the system of King and Jaggi, so that the loading portion is capable of rotating an object with constant angular velocity, as taught by Schembri, in order to enhance the detection process.

King, Jaggi, and Schembri all fail to teach that the laser beam emitting source illuminates from the direction perpendicular to the axis of rotation.

Hirschfeld discloses three coherent light beam sources which illuminate an object from X, Y, and Z directions which are perpendicular to each other (col. 9, lines 20-25. Note that the “three corresponding light beams along mutually orthogonal paths” in lines 23-24 is interpreted to mean that the beams are in the X, Y, and Z directions that are perpendicular to each other). Note that two of the light sources taught by Hirschfeld will illuminate the object from a direction perpendicular to the axis of rotation. For example, if the axis of rotation was in the X direction, the light sources that illuminate from the Y and Z directions will illuminate the object from a direction perpendicular to the axis of rotation.

King, Jaggi, Schembri, and Hirschfeld are all concerned with projection detection systems for detecting microscopic biologic objects. Hirschfeld’s system provides accurate measurements by minimizing orientation effects (Hirschfeld, col. 9, lines 11-13). Therefore, it would have been obvious to modify the system of King, Jaggi, and Schembri, so that the light source illuminates from the direction perpendicular to the axis of rotation, as taught by Hirschfeld, in order to obtain an accurate image analysis.

Referring to claim 7, King further discloses that the object is a transparent cell container (slide) which contains a microorganism colony (col. 6, lines 11-14).



*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Akiba et al. U.S. Patent No. 4,342,515 discloses a laser beam emitting source which illuminates an object from the direction perpendicular to the axis of rotation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Monday thru Thursday 8:30am to 6:00pm and alternating Fridays 9:30am to 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.



ck

June 27, 2003

  
Jon Chang  
Primary Examiner